Seventh Semester B.E. Degree Examination, Aug./Sept.2020
Object Oriented Modeling and Design

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions, selecting at least TWO full questions from each part.*

PART – A

1   a.   What is Object-Oriented development methodology? Explain how the Object Oriented approach differs from traditional method or approach.   **(10 Marks)**
    b.   What are links and associations? Write WML notation for links and association and explain with an example.   **(10 Marks)**

2   a.   What is aggregation and composition? How is aggregation different from composition? Give their respective UML notations with example.   **(10 Marks)**
    b.   What is an event? Explain different types of events with example.   **(10 Marks)**

3   a.   How do you represent branching and concurrency in activity diagram?   **(10 Marks)**
    b.   Draw usecase diagram for vending machine. What are the guidelines needed to be followed whole drawing use case diagram.   **(10 Marks)**

4   a.   Explain the stages of software development which life cycle would you prefer in the development? Why?   **(10 Marks)**
    b.   Describe domain analysis with an example.   **(10 Marks)**

PART – B

5   a.   Discuss the steps followed in constructing application class model with the diagram.
                                                                                               (10 Marks)
    b.   Explain the architecture of the ATM system with diagram.   **(10 Marks)**

6   a.   Explain class design. Discuss the steps of a system design.   **(10 Marks)**
    b.   How do you choose association traversal? Explain with an example.   **(04 Marks)**
    c.   Write short notes on:
         i)   Forward Engineering
         ii)   Reverse Engineering
         iii) Wrapping.   **(06 Marks)**

7   a.   What is pattern? Explain the Model View-Controller design pattern for software architecture.   **(10 Marks)**
    b.   Discuss the client dispatcher server design pattern.   **(10 Marks)**

8   a.   What are Forwarder-Receiver design patterns? Give the steps to implement a forward receiver design patterns.   **(10 Marks)**
    b.   What are Idioms? How they are helpful in selecting optimized solution for a given problem?
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Seventh Semester B.E. Degree Examination, Aug./Sept. 2020
Programming the Web

Time: 3 hrs.   Max. Marks:100

Note: *Answer FIVE full questions, selecting atleast TWO questions from each part.*

PART – A

1 a. What is a internet? What is the task of a DNS Name Server?   **(06 Marks)**
     b. Explain the hypertext transfer protocol.   **(10 Marks)**
     c. Give and explain the syntax of the following :
       i) <meta>   ii) <img>   iii) <a>   iv) <blockquote>.   **(04 Marks)**

2 a. Create a XHTML document to describe a table with the following contents of the column of a table must have the heading's pinc, maple, oax and fir the rows must have the labels average height, average width typical lifespan and leaftype include align, cellspacing and cell padding.   **(10 Marks)**
     b. Explain the different selector forms provided in CSS. Illustrate the use of each with suitable example.   **(10 Marks)**

3 a. Explain with a example the screen output and key board input method in JavaScript.   **(06 Marks)**
     b. Write a XHTML document and JavaScript function to validate the USN (2XX15XX999) and mobile number (99999 – 99999).   **(08 Marks)**
     c. Write a JavaScript function to find median of an array numbers.   **(06 Marks)**

4 a. What is an event and event handler? Write a XHTML document and event handling in JavaScript to handle the event from body and button elements with example.   **(10 Marks)**
     b. Explain the different types of positioning with example.   **(06 Marks)**
     c. What event can be used to change font when the mouse cursor is moved over and away from an element? With example.   **(04 Marks)**

PART – B

5 a. How elements and attributes are declared in DTD give a sample DTD for defining an airplane.   **(10 Marks)**
     b. Explain why CSS style sheet is required for XML document with example.   **(04 Marks)**
     c. How elements and attributes are declared in DTD give a sample DTD for defining on airplane.   **(06 Marks)**

6 a. What are the three categories of Perl variables with example?   **(06 Marks)**
     b. How files are handled in Perl? List files use specification and their meaning.   **(08 Marks)**
     c. What is a query string? How is it transmitted to the server with Get and Post methods?   **(06 Marks)**

7 a. Explain the array creation in PHP.   **(10 Marks)**
     b. How can the value of a form element be accessed by PHP script with example.   **(10 Marks)**

8 a. Explain the different ways to create arrays in Ruby. Write a Ruby program to illustrate the use of array a list of line text where each line is a person name all letters are converted to uppercase in alphabetical order.   **(08 Marks)**
     b. Define a class. Define Ruby class to implement a stage like structure in an array.   **(08 Marks)**
     c. Explain the over-view of Rails.   **(04 Marks)**

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Seventh Semester B.E. Degree Examination, Aug./Sept. 2020
Advanced Computer Architecture

Time: 3 hrs. Max. Marks:100

Note: *Answer FIVE full questions, selecting atleast TWO questions from each part.*

PART – A

1 a. What are the three classes of manstream computer and their characteristics **(03 Marks)**
   b. How do you calculate the cost of an integrated circuit in terms of wafer diameter and Die area? **(07 Marks)**
   c. Find the number of dies per 400 mm diameter wafer for a die that is 2cm on a side. **(08 Marks)**
   d. Define module availability in terms of MTTFS and MTTR. **(02 Marks)**

2 a. How do you specify the performance of a computer? **(02 Marks)**
   b. How do you specify the SPECRatio of a computer? **(04 Marks)**
   c. Explain the utility of Amdahl's law. **(06 Marks)**
   d. Suppose you want to achieve a speedup of 80 with 100 processors, what fraction of the original computation can be sequential. **(08 Marks)**

3 a. What is pipelining? **(02 Marks)**
   b. What are the major hurdles of pipelining? **(06 Marks)**
   c. Discuss how do you minimize data hazard stalls by forwarding. **(06 Marks)**
   d. Explain delayed branch technique. **(06 Marks)**

4 a. Explain the two types of name dependencies. **(06 Marks)**
   b. Discuss the advantages and disadvantages of Loop unrolling. **(06 Marks)**
   c. Explain how you can overcome data hazard with dynamic scheduling with Tomasulo's approach. **(08 Marks)**

PART – B

5 a. Discuss hardware – based speculation in ILP. **(10 Marks)**
   b. Describe the use of branch target buffer and the steps involved in handling an instruction with BTB. **(10 Marks)**

6 a. Gives Flynn's taxonomy of parallel architecture with examples. **(04 Marks)**
   b. What are two classes of multiprocessors? **(06 Marks)**
   c. What is multiprocessor cache coherence? **(04 Marks)**
   d. Discuss two classes of protocols to track the sharing of a data block. **(06 Marks)**

7 a. What are the three categories of cache organization for block placement? **(08 Marks)**
   b. Assume we have a computer where clocks per instruction CPI is 1.0 when all memory access hit the cache. The only data access are loads and stores, and these total 50% of the instructions. If the miss penalty is 25 clock cycles and the miss rate is 2%, how much faster would the computer be if all instruction were cache hits. **(06 Marks)**
   c. Explain in brief what are the six basic cache optimizations. **(06 Marks)**

8   Write short notes on the following :
   a. Dynamic branch prediction in ILP
   b. Directory – based cache coherence protocol
   c. Power equation of an integrated circuit
   d. Handling exceptions in instruction pipeline. **(20 Marks)**

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Seventh Semester B.E. Degree Examination, Aug./Sept. 2020
Java and J2EE

Time: 3 hrs. Max. Marks:100

Note: *Answer FIVE full questions, selecting atleast TWO questions from each part.*

PART – A

1 a. Briefly explain any six buzzwords used for designing Java program. **(05 Marks)**
  b. With an example, explain the working of >> and >>> operators. **(05 Marks)**
  c. Explain the process of building and running a java application program. **(05 Marks)**
  d. Write a program to calculate the average among the elements {1, 5, 7, 9} using for each version of for statement in Java. **(05 Marks)**

2 a. Explain the concept of method overriding with an example. **(07 Marks)**
  b. What is command – line arguments? Write a program to demonstration command line arguments. **(07 Marks)**
  c. What are the two types of applets? Explain the skeleton of on applet. **(06 Marks)**

3 a. What are the two methods of creating a new thread. Write a program to create a new thread using any method to display 'VTU Belgaum' and display it for 1 second. **(08 Marks)**
  b. What do you mean by thread synchronization? Explain with syntax. **(08 Marks)**
  c. Explain the adaptor classes with example. **(04 Marks)**

4 a. Name the different types of swing buttons. Give their syntax of corresponding constructors. **(06 Marks)**
  b. Explain the various constituents of swing package. **(06 Marks)**
  c. How AWT is different from swing? What are two key features of swing and explain. **(08 Marks)**

PART – B

5 a. Explain J2EE multitier architecture. **(08 Marks)**
  b. With proper syntax, explain three types of getConnection method. **(08 Marks)**
  c. Write a note on result set. **(04 Marks)**

6 a. What is servelet? Explain life cycle of servelte. **(07 Marks)**
  b. What is a cookie? List the various methods defined by cookie. **(07 Marks)**
  c. Describe in detail, how tomcat web server is configured for development of servlet. **(06 Marks)**

7 a. What is the difference between sevlets and JSP? Explain different types of JSP tags with syntax. **(06 Marks)**
  b. Briefly explain the working of JAVA RMI programs with appropriate steps. **(08 Marks)**
  c. What are the differences between server side and client side JAVA RMI? **(06 Marks)**

8 a. Explain various EJB transaction attributes. **(07 Marks)**
  b. With a skeleton explain session java bean. **(07 Marks)**
  c. Write a note on JAR file. **(06 Marks)**

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